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By David R. Moeller, Fredrikson & Byron P.A.

COVER FOCUS: SOLAR POWER

Policy Problems Aside, Solar Continues to Shine

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Despite an increasingly challenging policy environment, solar energy continues to set records and attract investment. Industry analysts and executives point to solar's unmatched build speed, falling costs, and surging demand from data centers as the forces keeping growth on track.

A Blueprint for Successful Solar Canopy Projects

19

Solar canopies are transforming underutilized parking lots into clean energy assets—but success hinges on the details. This article walks through the key structural configurations, site planning strategies, and design considerations that determine a canopy project's cost, performance, and long-term resilience.

FEATURES:

TRANSMISSION & DISTRIBUTION

77 Miles, One Drone: Rewriting the Rules of Infrastructure Inspection

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A Florida drone company recently completed a long-range transmission corridor inspection in under three hours—at roughly a quarter of the cost of traditional helicopter surveys. The mission demonstrates that scalable, beyond-visual-line-of-sight drone operations are already achievable under existing Federal Aviation Administration regulations.

PREVENTIVE MAINTENANCE

Fewer People, Older Assets, Higher Stakes: How the Power Sector Is Rethinking Preventive Maintenance

24

Aging assets, retiring workers, and surging demand from artificial intelligence (AI) data centers are forcing power plant operators to rethink how they approach preventive maintenance. Industry experts explore how standardization, AI-assisted knowledge capture, and cautious steps toward autonomous control are helping bridge the gap.

DATA CENTERS

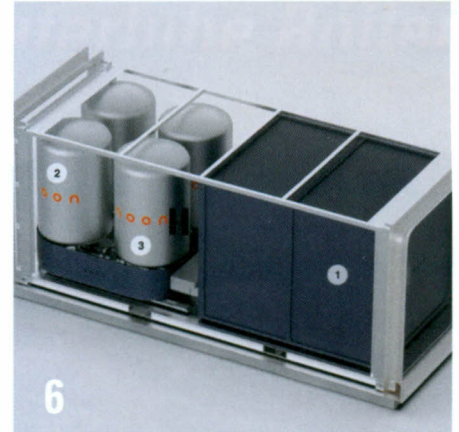
The Power Problem Behind AI—and a Path to Fix It

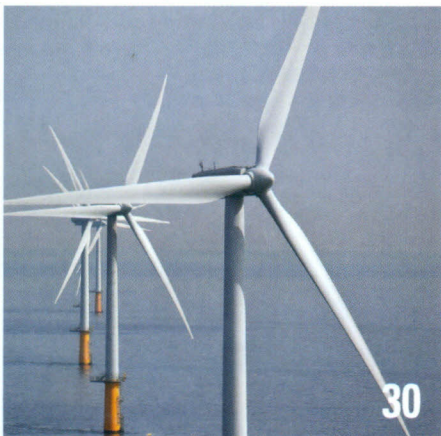
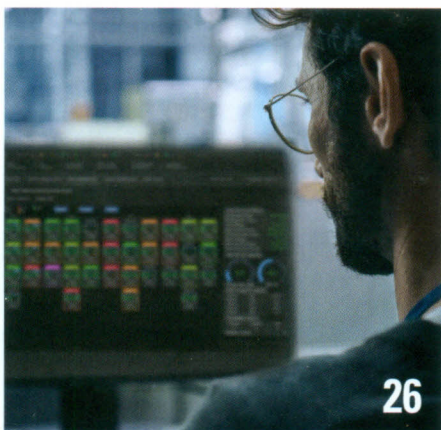
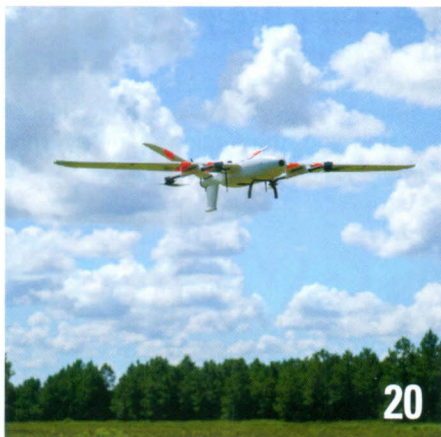
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Artificial intelligence (AI) training data centers create massive, unpredictable power swings that can destabilize the grid—making straightforward utility connections impractical for now. This article examines how battery energy storage, microgrid control, and unified supervisory automation are helping data center operators stabilize loads and prepare for eventual grid connection.

ON THE COVER

Crew members walk alongside rows of photovoltaic panels at a utility-scale solar installation, part of the growing buildout transforming the nation's energy mix. Courtesy: Nextpower





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Data Centers and the Grid: How Hyperscale Computing Is Reshaping Power Infrastructure

Web

Hyperscale data centers now consume power on par with mid-size cities, and the grid is struggling to keep up. This article breaks down the technical, logistical, and supply chain challenges utilities and developers face—and explores behind-the-meter solutions that could help close the gap. (Visit [powermag.com](https://www.powermag.com) and search “Data Centers and the Grid: How Hyperscale Computing Is Reshaping Power Infrastructure” to read this online-only exclusive.)

How to Reduce Energy Consumption with Improved Data Center Cooling Efficiency

Web

As artificial intelligence workloads drive data center power demands to unprecedented levels, cooling efficiency has become a critical operational and financial priority. This article examines how advanced liquid cooling instrumentation is helping hyperscalers improve uptime, cut energy costs, and meet sustainability targets. (Visit [powermag.com](https://www.powermag.com) and search “How to Reduce Energy Consumption with Improved Data Center Cooling Efficiency” to read this online-only exclusive.)

AI Data Center Growth Is Now a Power Infrastructure Problem

Web

Power availability—not processors or latency—has become the defining constraint in the artificial intelligence (AI) infrastructure race. This article explores how firm generation, smart siting, grid coordination, and power-efficient design are now as critical to the future of AI as the chips themselves. (Visit [powermag.com](https://www.powermag.com) and search “AI Data Center Growth Is Now a Power Infrastructure Problem” to read this online-only exclusive.)

CYBERSECURITY

Securing the Grid from the Sensor Up: Why Predictive Maintenance and Cybersecurity Are Inseparable

28

The sensors and predictive maintenance tools that keep power plants running also open the door to cyberattacks. Industry experts explain why securing the grid means bridging the information technology and operational technology divide, and treating cybersecurity as a reliability discipline.

WIND ENERGY

Don't Replace the Turbine, Re-Engineer It

30

As the first generation of wind turbines ages beyond manufacturer service agreements, operators are finding that re-engineering components can be smarter than wholesale replacement. This article makes the case for life extension over repowering—and the economic, operational, and sustainability benefits that come with it.

GAS POWER

Maximizing Plant Operations in a Time of Surging Demand

Web

With new generation capacity slow and expensive to develop, extending the life of existing power plants has become both a reliability imperative and a financial strategy. This article outlines how condition assessments, proactive maintenance frameworks, and data analytics help operators make informed decisions about aging assets. (Visit [powermag.com](https://www.powermag.com) and search “Maximizing Plant Operations in a Time of Surging Demand” to read this online-only exclusive.)

TECHNOLOGY

Why PLC Modernization Is Critical for Power Generation and Industrial Water Facilities

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Legacy programmable logic controller (PLC) systems are becoming a growing liability for power generation and water treatment facilities. Here's how a structured migration strategy can reduce risk, minimize downtime, and lay the groundwork for digital integration.

COMMENTARY

Fusion Won't Replace Energy Policy

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By Guido Núñez-Mujica, Anthropocene Institute

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